

What is claimed is:

1. A secondary battery of a proton conductive polymer, wherein a positive electrode and a negative electrode are arranged facing to each other via a separator in an electrolyte and only a proton in an indole trimer and a  $\pi$  conjugated polymer, or a proton of a hydroxyl group-containing polymer as an active material of electrode in the positive electrode and in the negative electrode participates in a charge/discharge, and a proton concentration is 5 to 40 % and an anion concentration is 30 to 60 % in the solution, respectively, and the anion concentration is at least higher than the proton concentration.

2. The secondary battery as claimed in Claim 1, wherein the electrolyte is an aqueous solution of sulfuric acid and hydrogensulfate is added in the aqueous solution.

3. The secondary battery as claimed in Claim 2, wherein the hydrogensulfate is potassium hydrogensulfate.

4. The secondary battery as claimed in Claim 2, wherein the hydrogensulfate is quaternary ammonium hydrogen sulfate.

5. The secondary battery as claimed in any one of Claims 2 to 4, wherein the concentration of sulfuric acid in the

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electrolyte is 5 to 40 %.

6. The secondary battery as claimed in any one of Claims 2 to 5, wherein the concentration of the hydrogensulfate added to the electrolyte is such that a weight ratio of the sulfuric acid to the hydrogensulfate is 100 parts of the sulfuric acid to 5 to 45 parts of the hydrogensulfate.

7. The secondary battery as claimed in any one of Claims 1 to 6, wherein the active material of the positive electrode is selected from a group consisting of polyaniline, polydianiline, polydiaminoanthraquinone, polybiphenylaniline, polynaphthylaniline, indole trimer and their derivatives, and the active material of the negative electrode is selected from a group consisting of polypyridine polypyrimidine, polyquinoxaline and their derivatives.

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